UNITED STATES DEPARTMENT OF AGRICULTURE — Radio Service — OFFICE OF INFORMATION

HOUSEKEEPERS' CHAT — Saturday, May 28, 1938

(FOR BROADCAST USE ONLY)

Subject: "NEWS NOTES FROM WASHINGTON." Information from Mr. H. C. Diehl, Bureau of Chemistry and Soils, United States Department of Agriculture.

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Here's a letter full of chilly news from our Department of Agriculture correspondent. She is reporting the latest news about freezing fruits and vegetables. If you plan to put up your own garden products this summer by freezing, or if you buy commercially frozen goods, you'll be interested in this letter.

Our correspondent writes: "When I heard that Mr. Diehl was in town for a visit -- Mr. H. C. Diehl, head of the Department's Frozen Food Laboratory in Seattle, Washington, I put on my hat and went straight over to the Bureau of Chemistry and Soils to ask him some questions. Here was my chance to learn the latest about freezing from the man who is in charge of the chemical research on that subject. I had plenty to ask him about the past, present and future of freezing.

"To begin with, I wanted to know who invented this new process of freezing perishable foods and when. Mr. Diehl surprised me by saying that preservation by freezing wasn't invented and wasn't new, strictly speaking. Or rather, he said, it was both very old and very new. He explained that, long before history, people in cold countries had happened on the fact that frozen meat will keep fresh. Freezing meat, game, fish and even bread has long been a practice among housewives in our northern States and in Canada. (Did you know, by the way, that bread kept frozen holds its 'new' taste -- is like bread baked that day though it may be months old?)

"Cold storage of meat, Mr. Diehl told me, came in with modern refrigeration. And as far back as 1907 somebody discovered that strawberries and sugar packed with cracked ice would keep their fresh natural color and flavor. So, for years barrels of frozen berries and cherries have been shipped to bakers, jam-makers, confectioners and ice cream manufacturers.

"But scientific freezing is new. Freezing vegetables is also new. And the frozen food industry that now puts up and ships millions of pounds of frozen fruits and vegetables a year is a young industry -- only 10 years old. The great center of this industry is in the Northwest where Mr. Diehl's laboratory is located. The Northwest has an ideal climate for growing fine fruits and vegetables, particularly the green peas that are so popular frozen. The Northwest also has low electric rates so the freezing process is not too expensive. And then, because it is far from the large city markets, its great crops of perishable products that would be hard to dispose of fresh can be frozen profitably.

"Mr. Diehl tells me that the frozen foods industry has made a remarkable record of growth. Where the canning industry has had 40 or 50 years of experience, the freezing industry has had only about 10. Much of its growth and success is the result of the research of chemists and engineers and plant scientists who have been working to solve the various problems of the process.

"I inquired about those problems and Mr. Diehl gave me some examples. To begin with, the frozen vegetable business was held back for years by a strange change that took place in the vegetables frozen raw, even when they were kept at zero temperature. Fine quality, freshly picked peas put into frozen storage soon began to turn yellow and take on an unpleasant odor. They seemed spoiled. Yet they couldn't be. Spoilage germs don't grow below 15 degrees Fahrenheit. The scientists finally located the trouble as enzymes in the vegetables. As you know, enzymes are those self-digesting substances that are in every living thing. Enzymes are not stopped by cold, but heat halts their action. So heat was the solution of that problem. The scientists tried scalding or blanching the vegetables before freezing and all was well. Blanching in steam for 60 seconds is the treatment now generally used for peas before they go into the freezer. Blanching not only stops the enzymes but 'sets' the natural color of the vegetables and makes them less springy and easier to pack.

"Another problem is freshness. The time from the field to the freezer must be short--or the vegetables will deteriorate. Shelled peas at ordinary summer temperature in the Northwest--70 degrees, lose much of their flavor and sweetness in 6 hours and by 9 hours are unfit to pack. Corn also soon changes in flavor.

"'But,' I said, 'what can you do about vegetables grown a long way from the freezing plant? And what about those that arrive at the plant in too large quantities to freeze right away?' Mr. Diehl said that buildings for freezing now have a room where they chill those vegetables that must wait. And they use crushed ice in trucks on a long haul.

"I had heard so much about 'quick-freezing' and the very cold temperature necessary that I asked how far below zero the freezers had to be. Mr. Diehl surprised me again by saying that in spite of all the publicity about 'quick freezing', he had found that most vegetables and fruits frozen at zero were just as good as those frozen at from 30 to 60 below. Very low temperatures make freezing expensive because they require more electricity. The speed of freezing is not more important than the temperature of storage after freezing. Zero is the right temperature for keeping both the vegetables and fruits.

"These are a few of the problems already solved, but Mr. Diehl says there are plenty more to work on. One of the most important is variety. The peas that are ideal for canning don't freeze well. Larger peas of deeper green color freeze better. As for peaches, those that can well have too little flavor and are too tough for freezing. So plant scientists have already started on the job of breeding varieties especially for freezing just as they once bred varieties for canning.

"Another problem not yet solved is educating the public to understand and care for frozen foods properly. Curiously enough, everybody knows how to treat a package of ice cream, Mr. Diehl says, but many housewives expect to keep a package of frozen peas a day or so on the kitchen shelf. Frozen foods can be kept overnight in a good refrigerator especially if it has a freezing unit. While frozen foods packed in sirup or brine may be allowed to thaw before use, it is better to put the 'dry' frozen vegetables on to cook, while still frozen. That saves the vitamin C in the food, which would otherwise be destroyed by the slow thawing."

That concludes our correspondent's interview on frozen foods with Mr. H. C. Diehl of the Frozen Foods Laboratory.